SYSTEM AND METHOD FOR AVOIDING DEADLOCK SITUATIONS DUE TO PSEUDO-DELETED ENTRIES

Abstract of the Disclosure

In a database management system (DBMS) **(60)** for a database application **(10)** including a database **(12)** having a table **(14, 16, 18)** and a unique key index **(42)** having indexes **(44, 46, 48)** therefor, the DBMS **(60)** includes a data manager **(64)**, an index manager **(66)**, a transaction manager **(62)**, and a lock manager **(68)** which restricts access to the table by assigning locks to elements thereof. In order to avoid deadlock in the database application due to the pseudo-deleted entries, the lock categories include an X-lock and a Conditional S-lock, and have lock attributes including at least a Delete attribute for the X-lock. The Conditional S-lock is compatible (granted by the lock manager) with an X-lock whose Delete attribute is NOT SET, but is not compatible (granted) with an X-lock whose Delete attribute is SET. Each index entry includes a pseudo-delete flag which is SET by the index manager **(66)** to indicate deletion of the indexed row. Conditional upon locating a pseudo-deleted index key corresponding to a key to be added to the index, the index manager **(66)** requests a Conditional S-lock on the row indexed thereby, whereby the index manager **(66)** verifies the Delete transaction which set the pseudo-delete flag has committed.

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